

FIG. 1 (PRIOR ART)

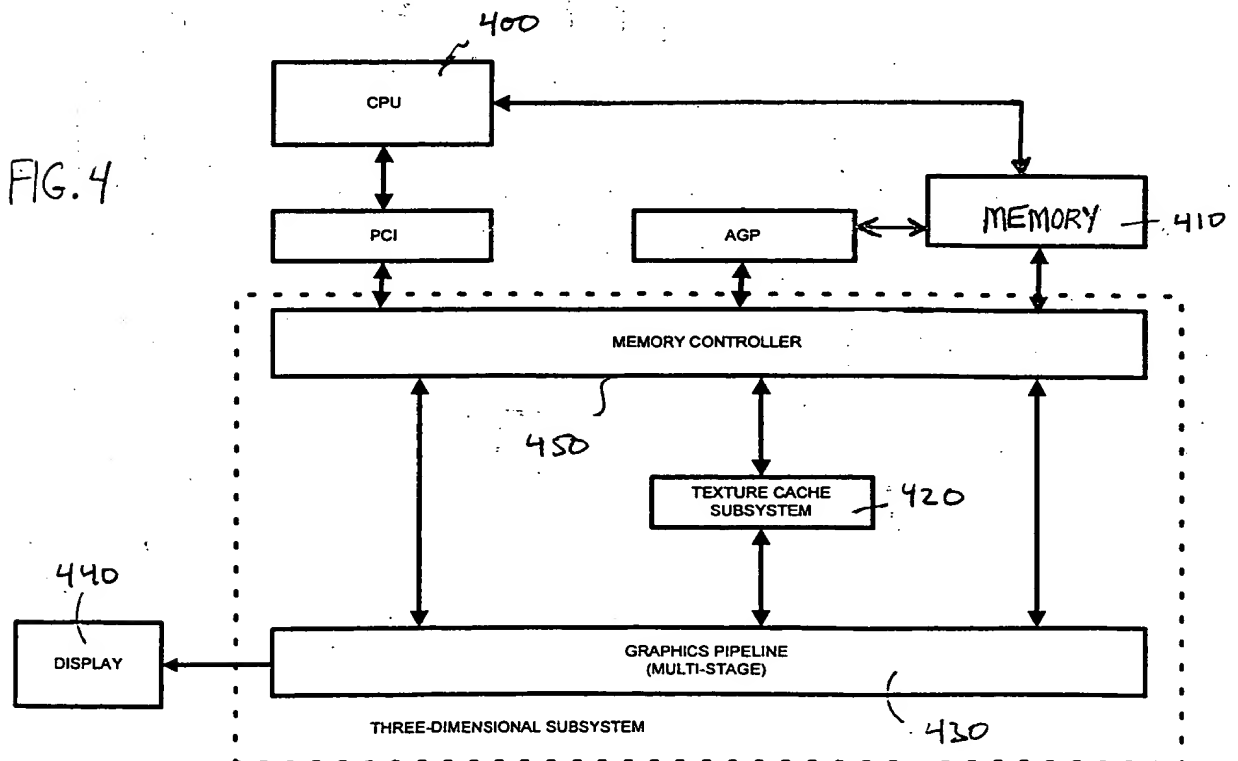
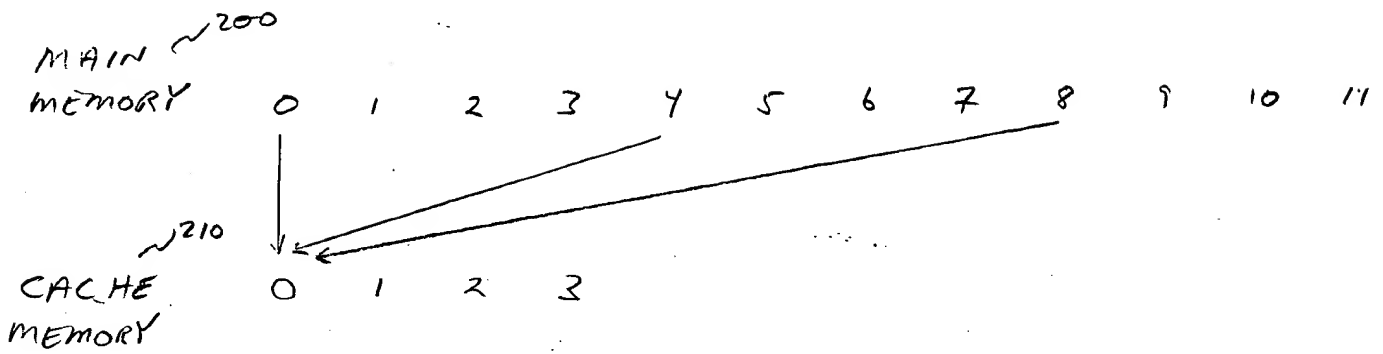
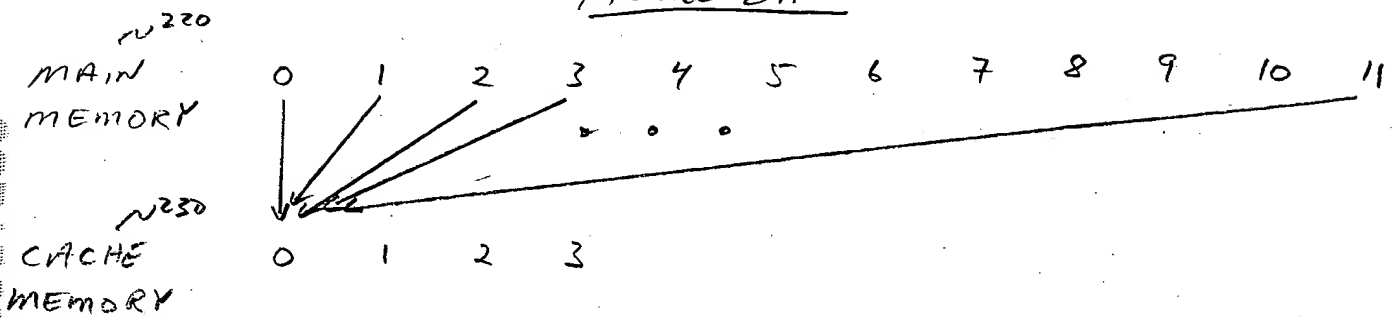


FIG. 4

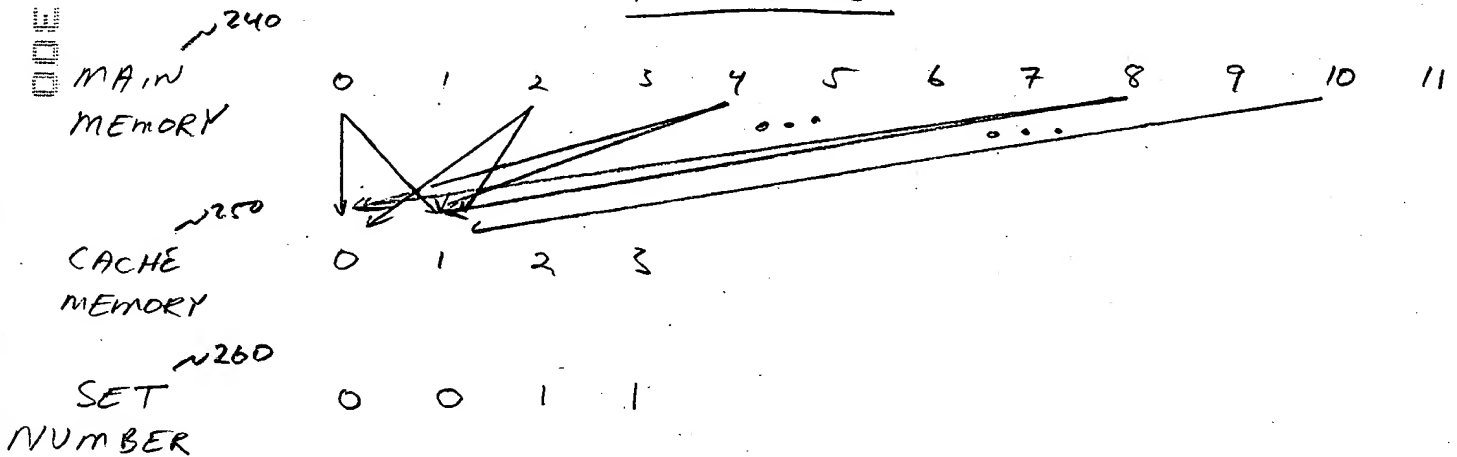
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DIRECT MAPPING  
FIGURE 2A



FULLY ASSOCIATIVE  
FIGURE 2B



2-WAY SET ASSOCIATIVE

FIGURE 2C

006FFF"2E92F260

~300

MAIN

MEMORY

0	1	2	3	4	5	...	11	~310
0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	~320



0190,10  
390 385 380

~330

CACHE

MEMORY

0	1	2	3	~340
0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	~350

SET

NUMBER

0	0	1	1	~360
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Figure 3.

$\tau[1:0]$  ↑

2	3	2	3	2	3	2	3
0	1	0	1	0	1	0	1
2	3	2	3	2	3	2	3
0	1	0	1	0	1	0	1

510 500

→

$S[2:0]$

Figure 5A

$\tau[1:0]$  ↑

2	3	2	3
0	1	0	1
2	3	2	3
0	1	0	1

540 550

→

$S[1:0]$

Figure 5B

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$\tau[4:2]$

28	29	30	31	60	61	62	63	600
24	25	26	27	56	57	58	59	610
20	21	22	23	52	53	54	55	
16	17	18	19	48	49	50	51	
12	13	14	15	44	45	46	47	
8	9	10	11	40	41	42	43	
4	5	6	7	36	37	38	39	
0	1	2	3	32	33	34	35	

$s[4:3]$   $s[4:3]$

Line index = 0 Line index = 1

Figure 6

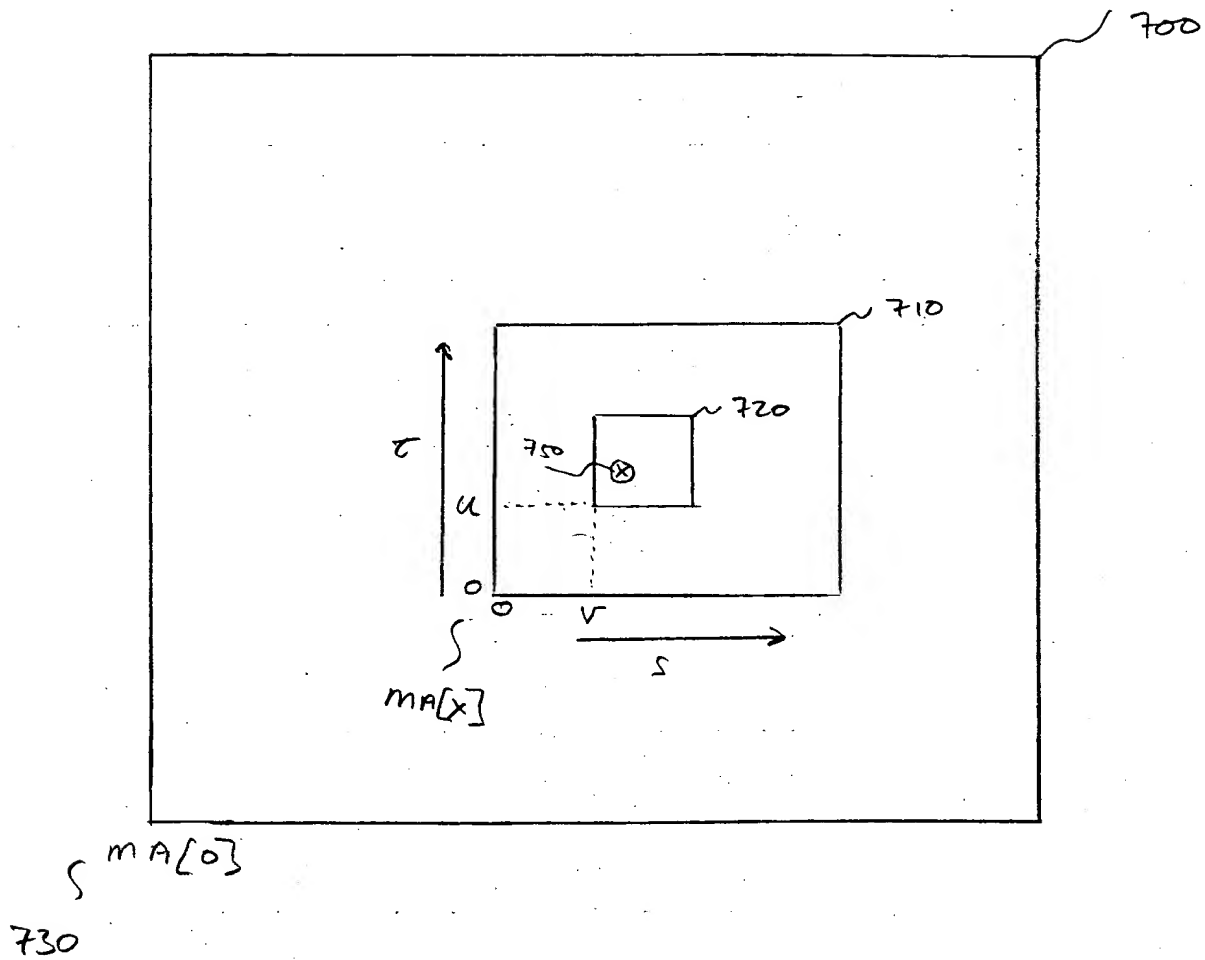


Fig. 7

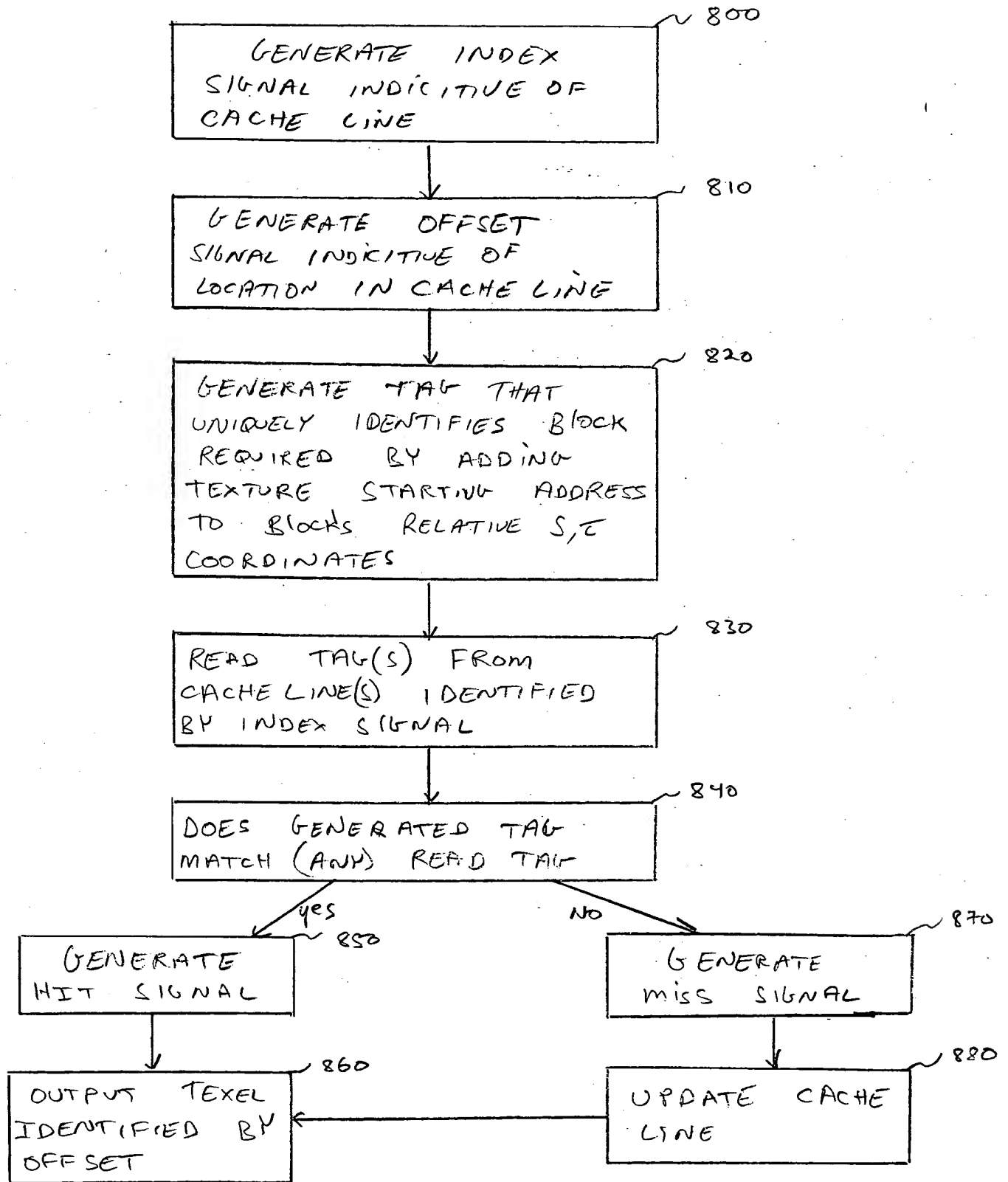
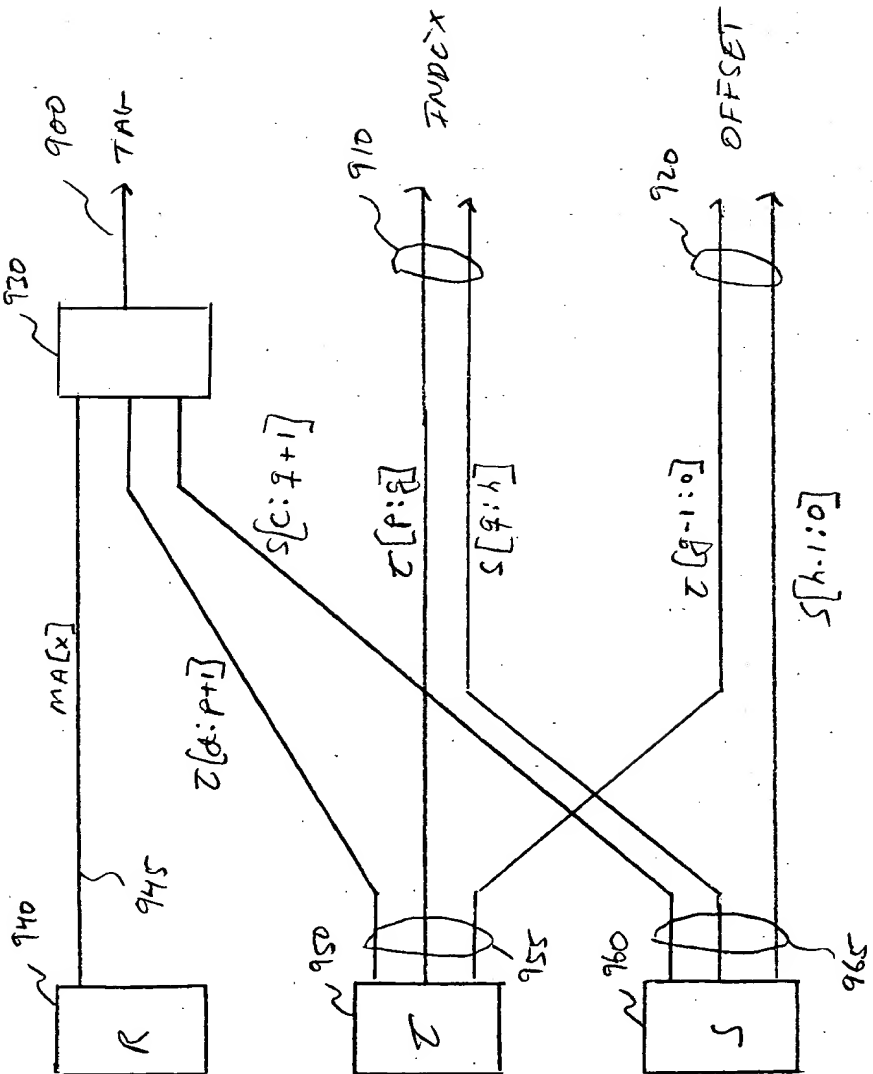


Fig. 8

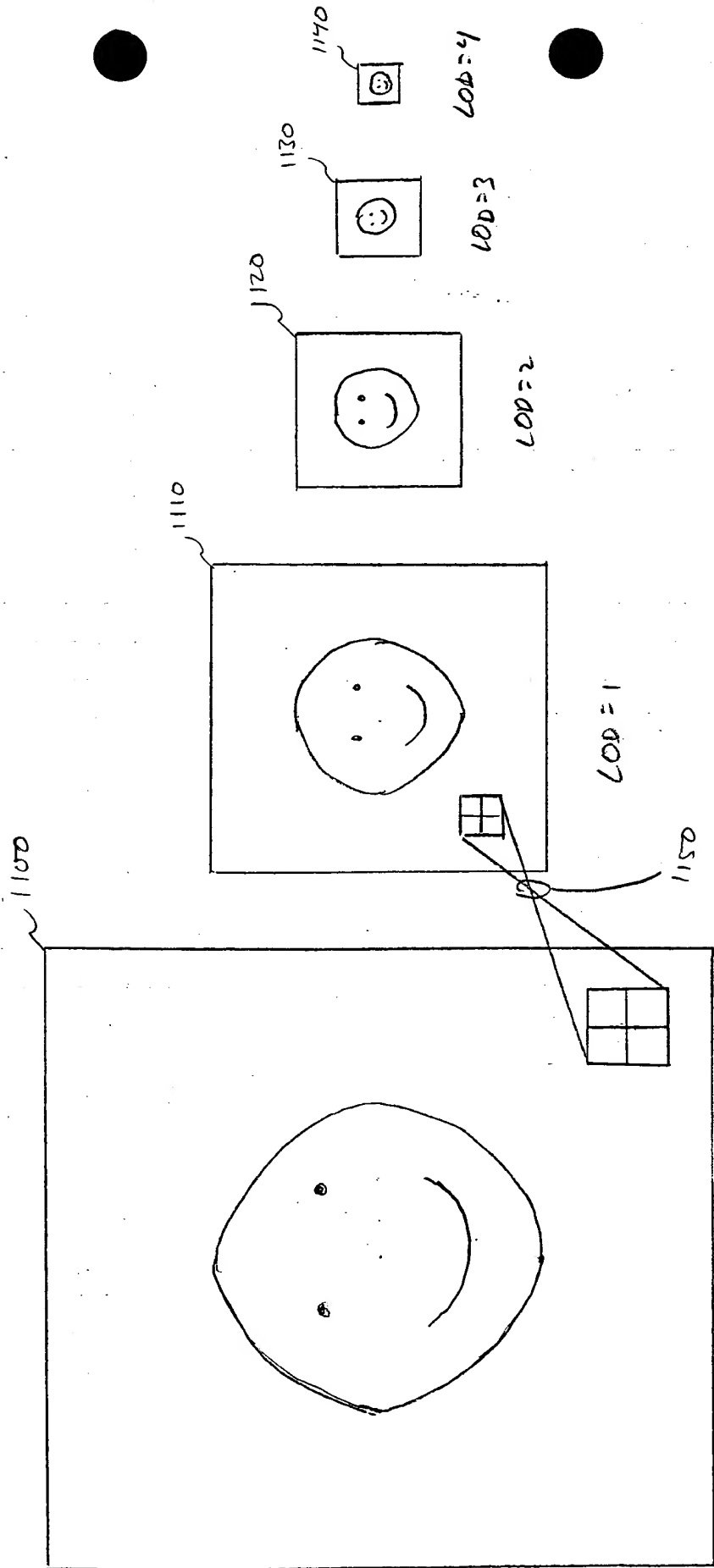
Figure 9







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LOD=0

Fig. 11

Figure 12



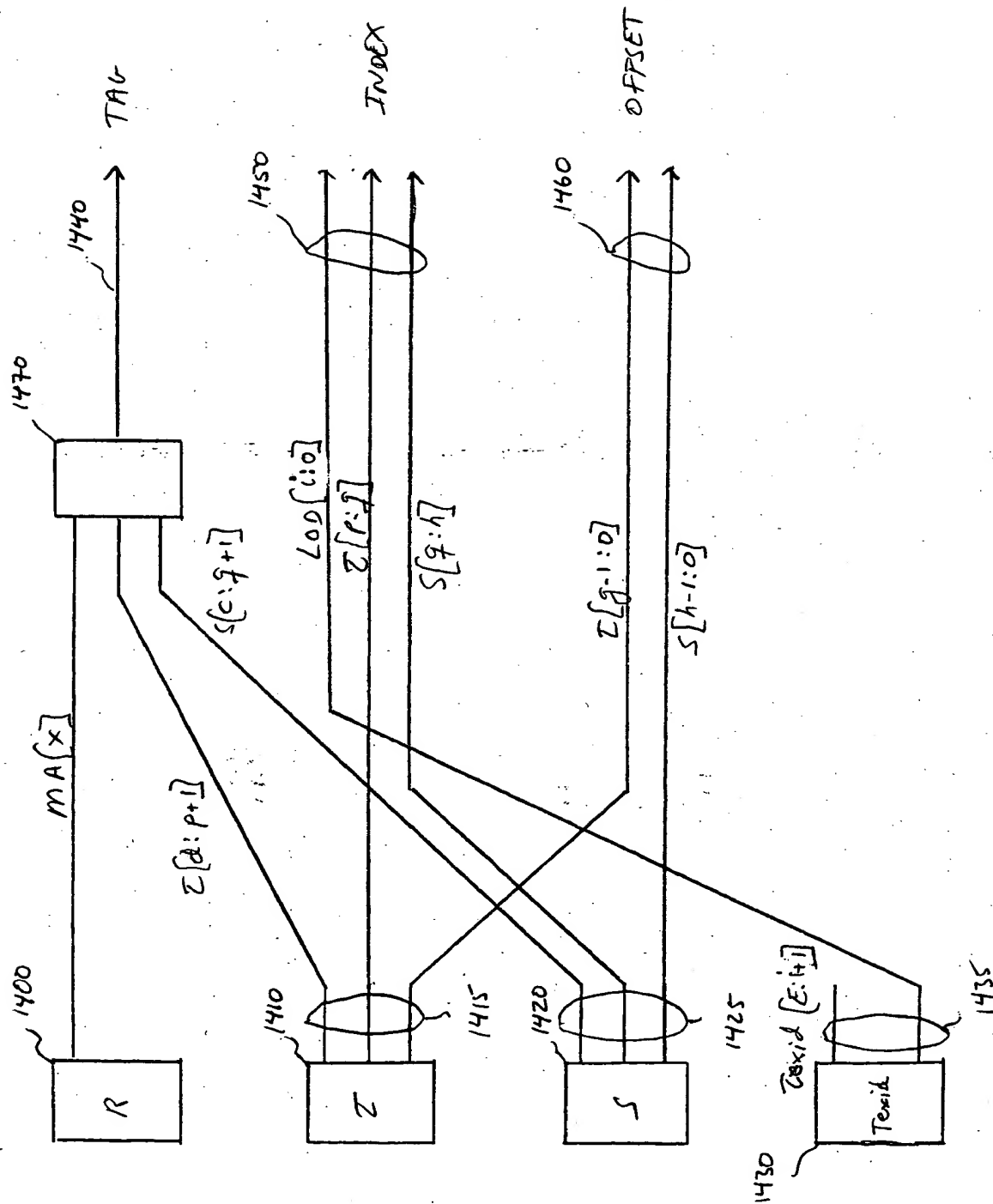


Figure 14

Diagram illustrating a 2D array structure with 8 rows and 8 columns. The array is divided into two 4x4 quadrants.

**Top-Left Quadrant (mem[0], T[3:2]):**

28	29	30	31
24	25	26	27
20	21	22	23
16	17	18	19

**Top-Right Quadrant (S[4:3], Line index = 0):**

60	61	62	63
56	57	58	59
52	53	54	55
48	49	50	51

**Bottom-Left Quadrant (mem[0], T[3:2]):**

12	13	14	15
8	9	10	11
4	5	6	7
0	1	2	3

**Bottom-Right Quadrant (S[4:3], Line index = 1):**

44	45	46	47
40	41	42	43
36	37	38	39
32	33	34	35

Labels on the left side of the array: mem[0], T[3:2], mem[0], T[3:2].

Labels at the bottom of the array: S[4:3], S[4:3].

Labels at the bottom right: Line index = 0, Line index = 1.

Fig. 15

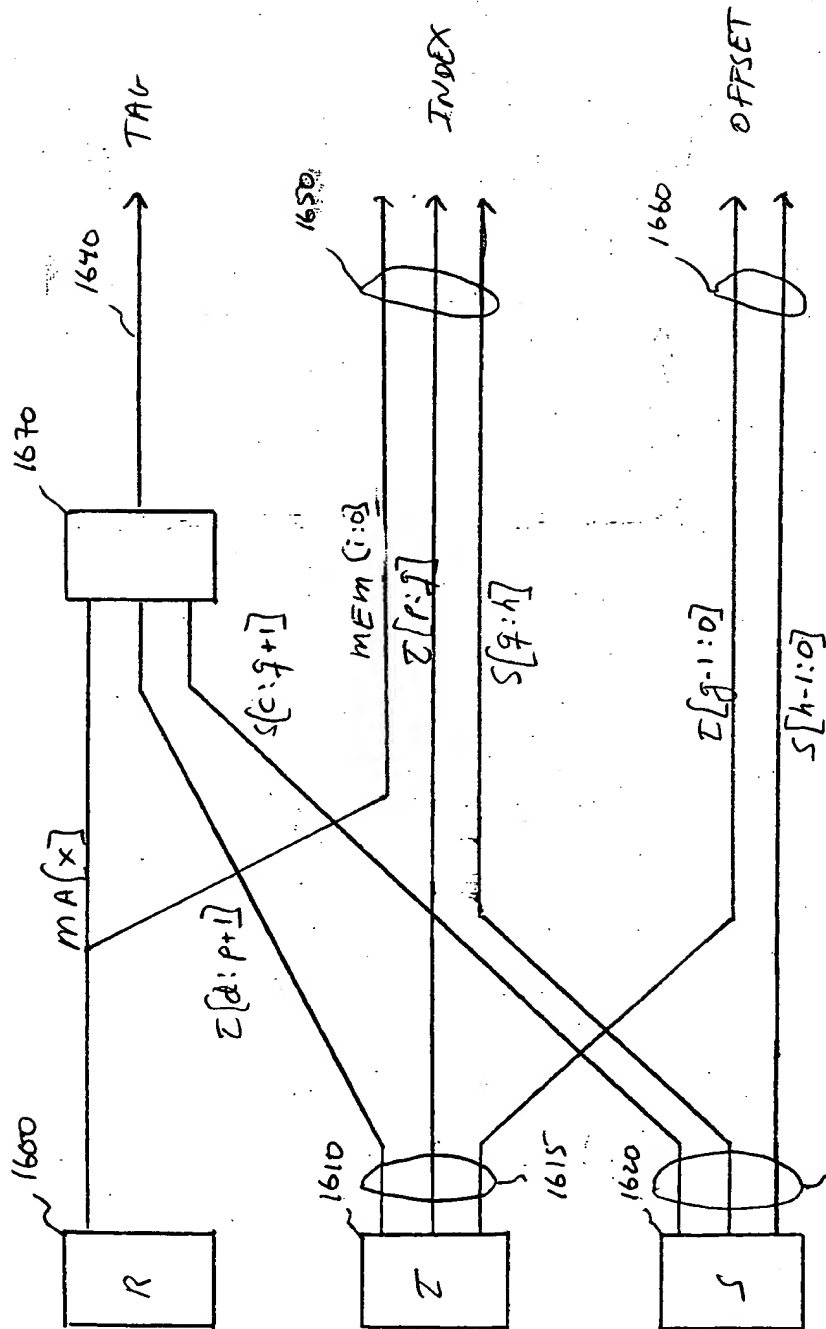


Figure 16

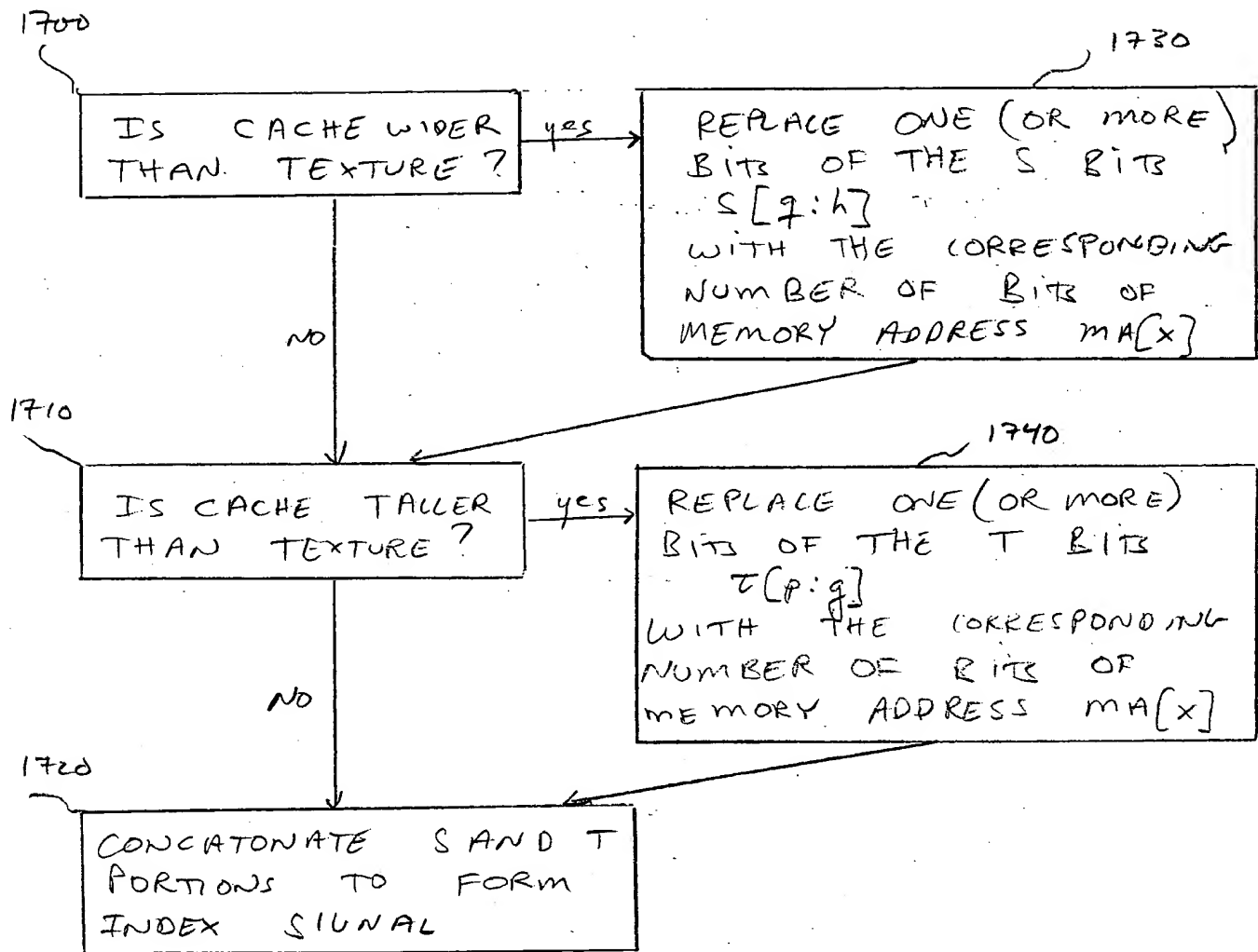


FIGURE 17.



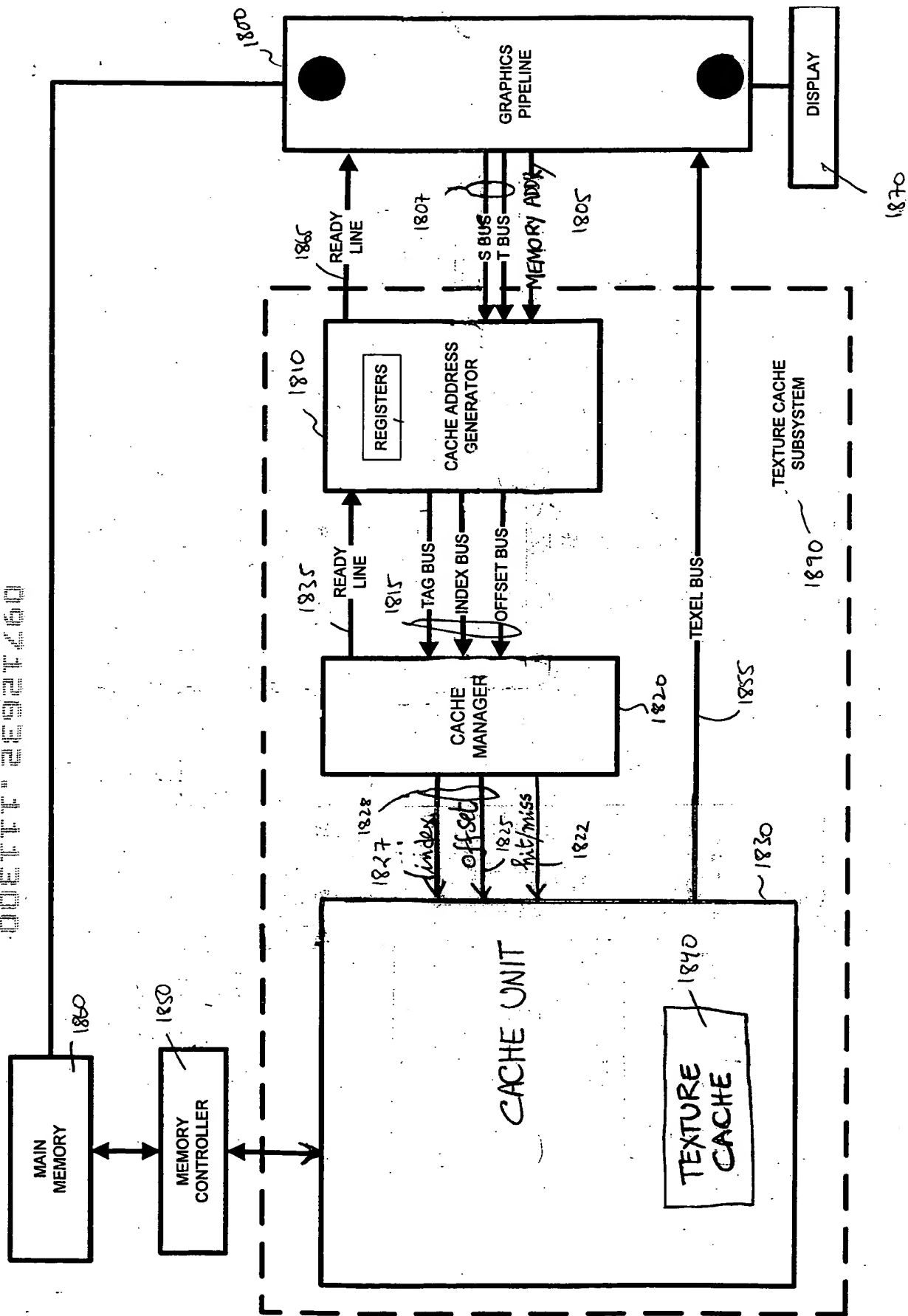


Figure 18



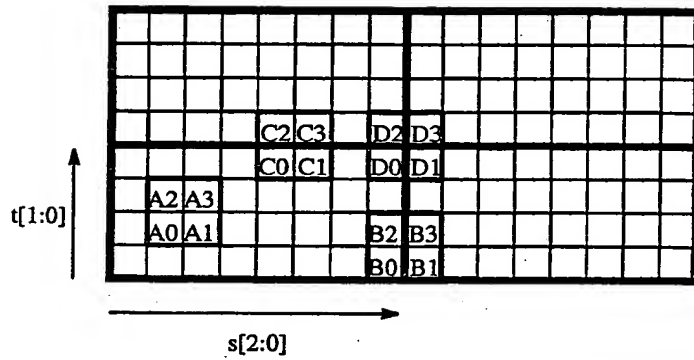


Figure 20

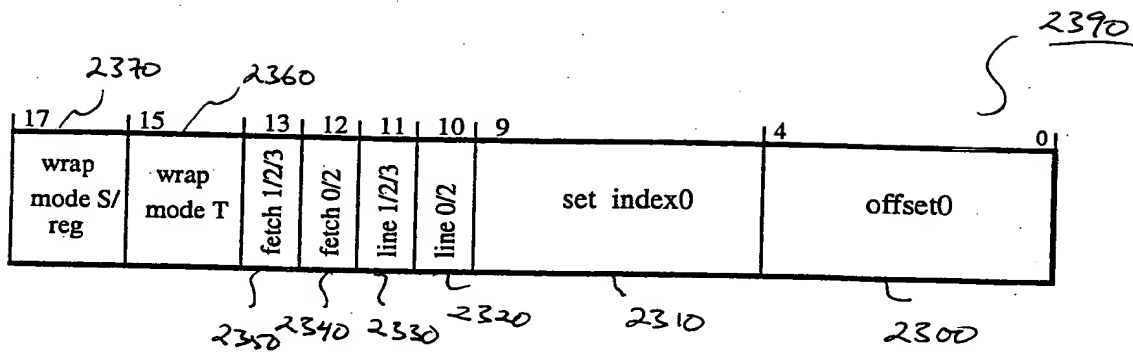


Figure 23

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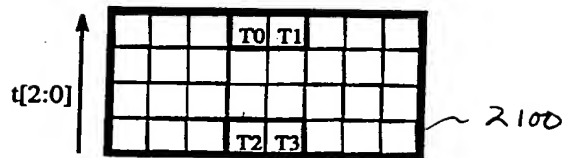
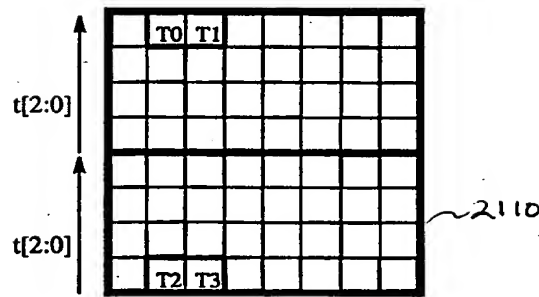
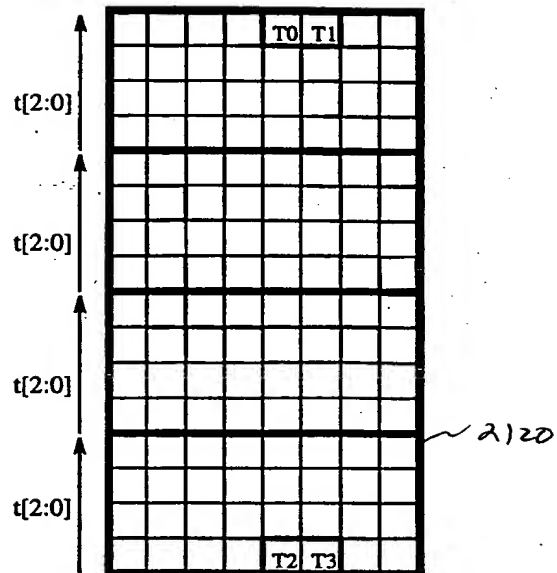
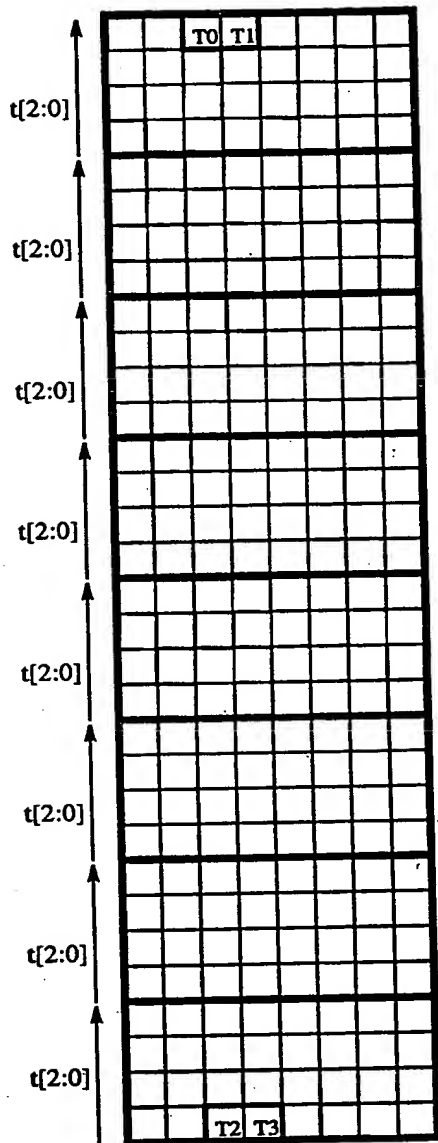


Figure 21

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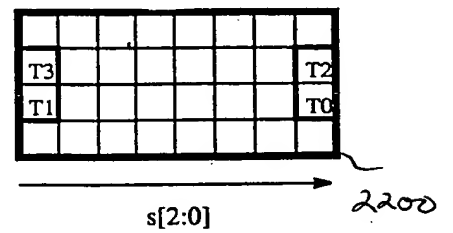
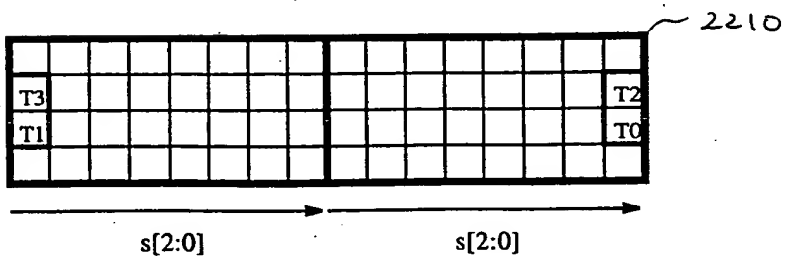
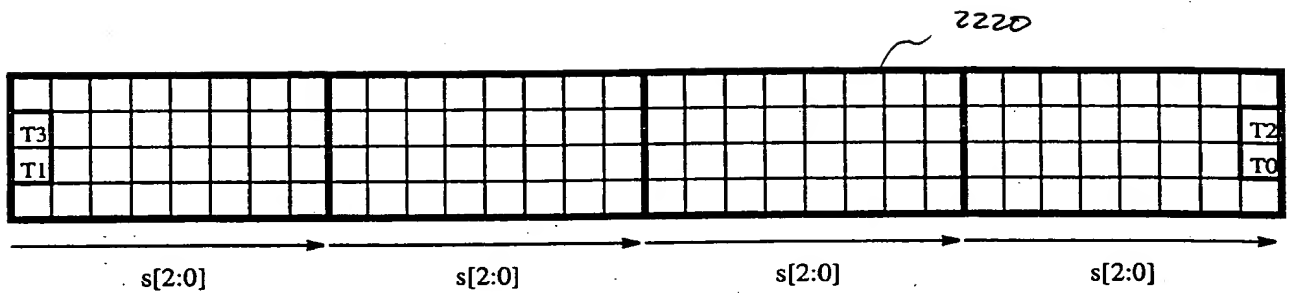


Figure 22

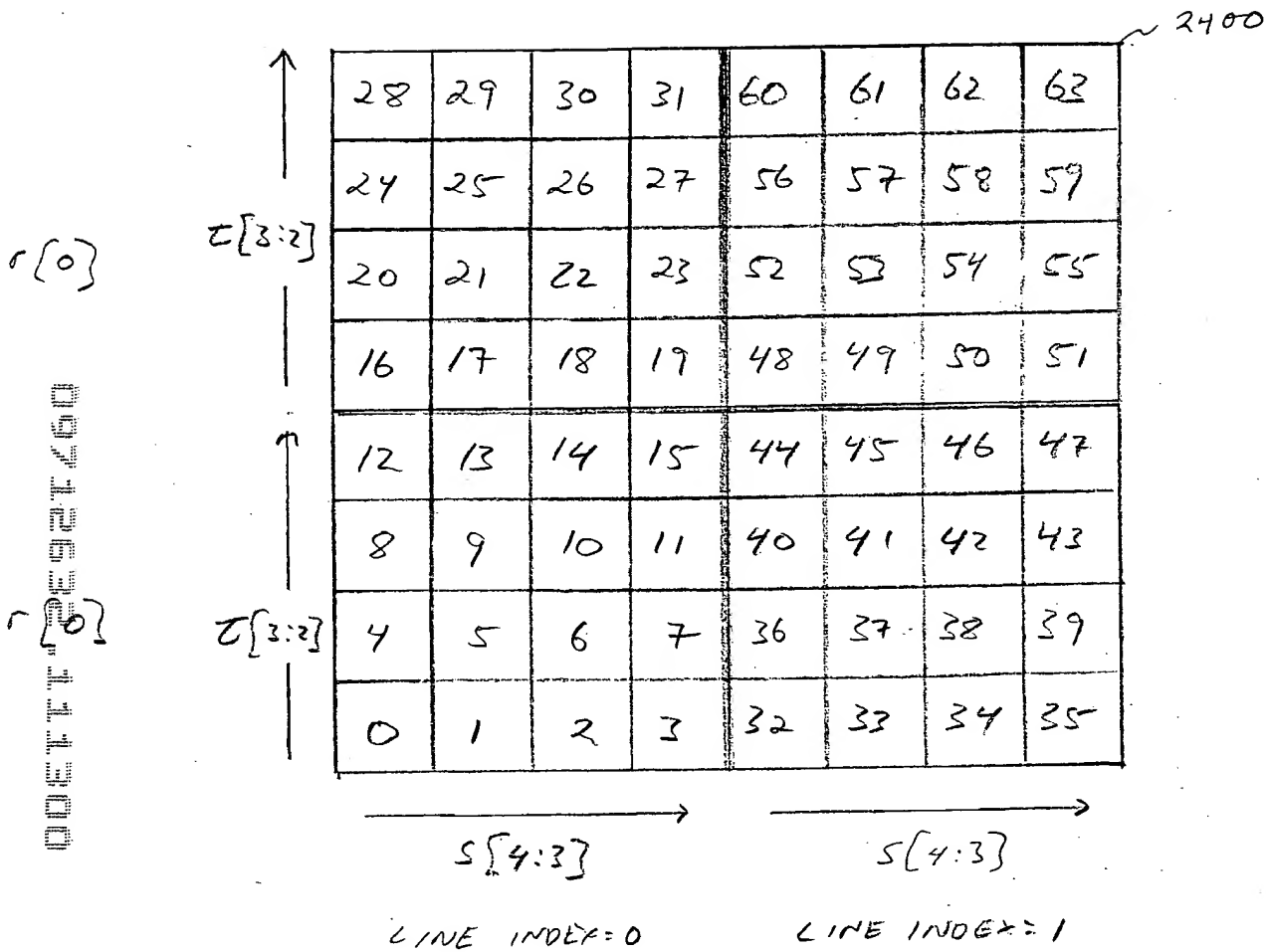
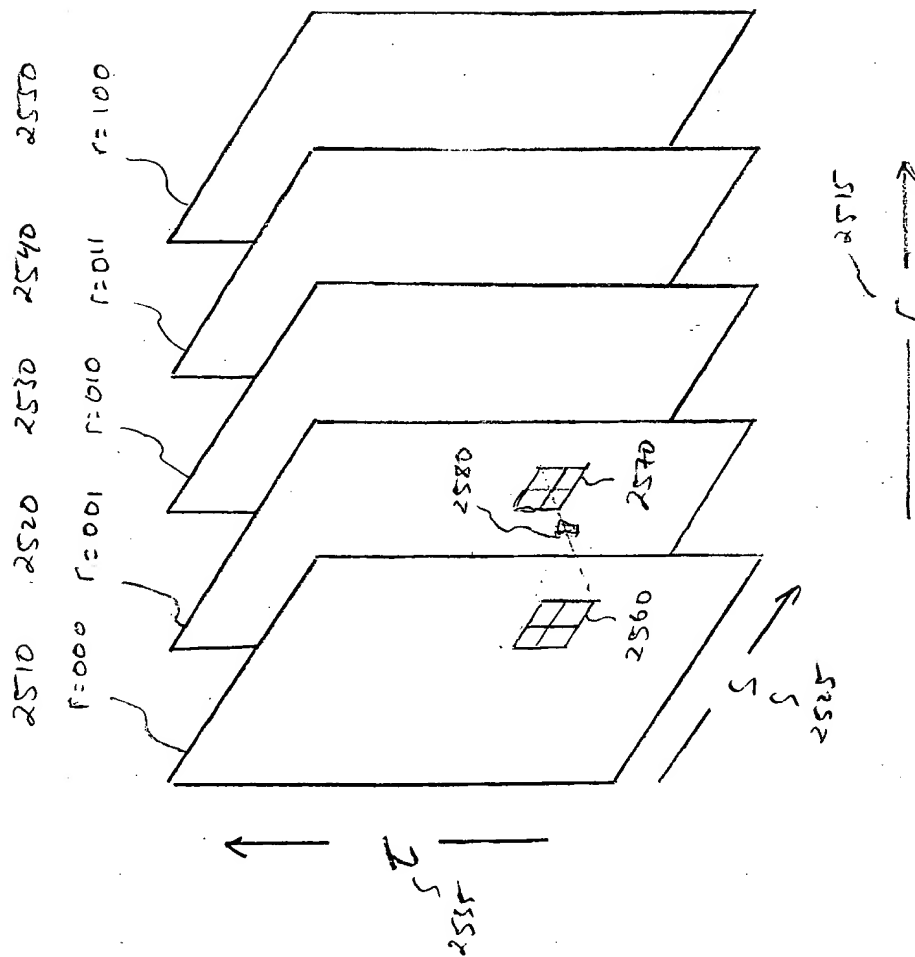


Figure 24

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2502

FIGURE 25

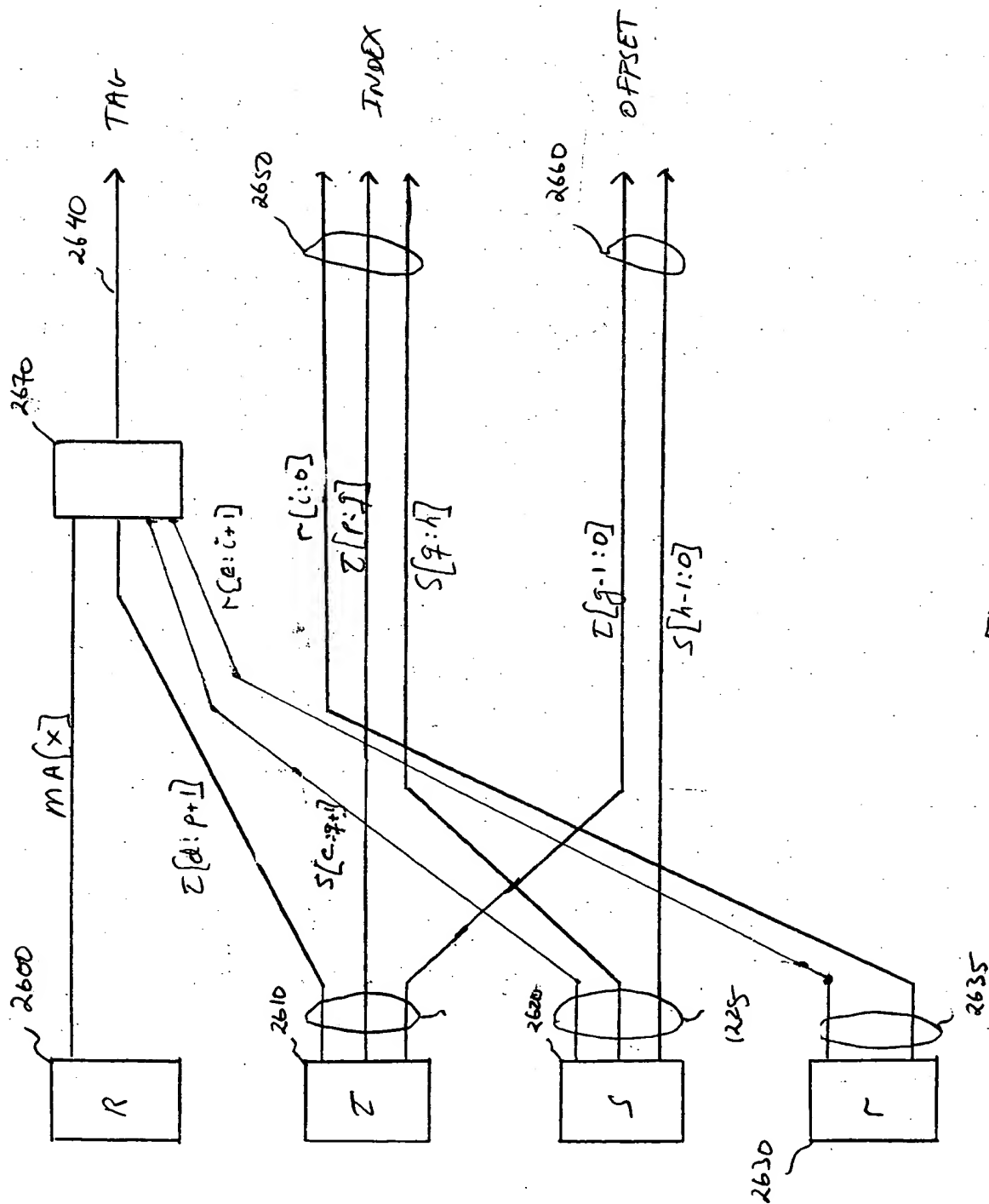


Figure 26